

Tbc. Research Laboratory,  
411 East 69th St., New York 21, N. Y.

October 7, 1949.

Dr. S. E. Luria,  
Department of Bacteriology,  
Indiana University,  
Bloomington, Indiana.

Dear Salva:

Thanks for your letter of September 29th. I have no dispute with any of Lederberg's comments on my suggestions, except that I do think it might be helpful in a chapter on Methods to let people entering this field know that certain mutants have proved elusive and may well not exist. This comment would apply to hydroxyproline, norvaline and norleucine, as well as the fat soluble vitamins. As a practical matter, it might not be generally appreciated that these three amino acids are not found in casein hydrolysate.

In connection with the inhibitory effect of D-serine, Werner has just determined that the K-12 strain behaves like our strain. The concentration ranges of vitamins giving varying turbidity with our mutants are the following, in m $\mu$ /ml.:

Thiamine, Biotin, PABA, B-12:.....0.1 to 1

Niacinamide, Pyridoxamine, Pantothenic:....1 to 100

Incidentally, it might be mentioned that for maximal growth on solid media one requires two to four times as much as for maximal turbidity in liquid minimal medium.

I would appreciate, if possible, a chance to see the revised version on my comments on the penicillin method since the changes will be extensive. If you leave in the sentence on the output of certain vitamins by wild type (page 7), I would appreciate your substituting "pantothenic" for pantoic as pantoic is an error. In addition, I have <sup>recently</sup> ~~just~~ been unable to confirm, with one of his mutants as well as our own, Lederberg's observation that proline resistant mutants do not respond normally to penicillin. I hope Josh will send you permission to eliminate both his statement and my comments on this method (page 8) in my section on penicillin.

*proline*

Dr. S. E. Luria

October 7, 1949.

Enclosed is a short paragraph on partial requirements  
and slow growers.

With best regards to you and Zella,

Sincerely yours,

Bernard D. Davis,  
Senior Surgeon.

BDD/hl

### SLOW-GROWERS

Attention has naturally been concentrated on mutants with absolute requirements. But mutants of two other classes are quite common: those with relative requirements, which grow slowly on minimal medium and rapidly with the proper supplement; and "slow-growers" which cannot be hastened by any available supplements. As might be expected, such mutants appear to be isolated less frequently by the penicillin method than by the earlier methods which selected small colonies. Mutants of both these types are <sup>also</sup> frequently found among the reversions, spontaneous or ultra-violet induced, from strains with absolute requirements.